

REMARKS/ARGUMENTS

Claims 1-25 were rejected under 35 U.S.C. 103(a) as being unpatentable over Tsai (4,673,696) in view of Kurth et al. (2002/0121328). Applicant maintains that the Examiner has failed to establish a prima facie case of obviousness and respectfully requests withdrawal of the rejection for the following reasons.

Tsai was directed to solving a problem related to RIM technology which requires levels of short chain diols to be such that the solubility level of the short chain diols in the long chain polyols is exceeded. Such combinations lack storage and phase stability. See Tsai, column 4, lines 3-7; column 2, lines 63-66. Tsai solved the problem by the inclusion of a compatibilizing ethylenically unsaturated esterol. See column 1, lines 66-68. Applicant's claimed invention would not have been obvious in view of Tsai or the other references of record.

In support of the rejection, the Examiner states:

Tsai differs from the instant claims in that the prepolymers derived from the active hydrogen containing compounds as claimed are not particularly set forth. However, Tsai sets forth within its own disclosure the necessary polyols which would be looked to in the making of prepolymers of applicant's claims. Accordingly, it would have been obvious for one of ordinary skill in the art to have employed the polyols and hydroxyl functional acrylates disclosed by Tsai as the modifying components in the making of the prepolymers of Tsai for the purpose of providing acceptable active hydrogen functionality in the facilitation of the realization of targeted formation of segmented structures within the practice of the preparations of Tsai in order to arrive at the products and processes of applicant's claims with the expectation of success in the absence of a showing of new or unexpected results. (See page 3, first paragraph, of the Office Action of December 5, 2006)

In other words the Examiner is taking the position that Tsai discloses a variety of components including polyols and isocyanates that may be used in urethane chemistry. The Examiner further supports the rejection by stating:

Tsai further differs from applicant's claims in that hydrophobic bio-polymers such as those of applicant's claims are not particularly utilized. However, Kurth et al. discloses the usefulness of polyols of natural oils as soybean oils in the preparation of polyurethane foams for the purpose of deriving polyurethane products from renewable sources (see paragraphs [0001] and [0012], as well as, the entire document). Accordingly, it would have been obvious for one having ordinary skill in the art to have employed the bio-based polyols of Kurth et al., as polyols in the workup of products of Tsai for the purpose of employing renewable reactants in deriving useful products in order to arrive at the products and processes of applicant's claims with the expectation of success in the absence of a showing of new or unexpected results.

Apparently it is also the Examiner's position that because Kurth, et al. also discloses biopolymer polyols, that such biopolymer polyols could be used in urethane chemistry. In essence, the Examiner's position is that any invention involving a process of reacting at least one or more polyols with an isocyanate or an isocyanate prepolymer would be obvious. The fact that applicant's claimed methods involve urethane chemistry cannot be a basis in itself for denying patentability of applicant's claims. The rejection has failed to explain which component of Tsai is being modified by which component of Kurth et al and consequently has not identified a rationale for the modification or substitute. As such, the rejection fails to establish a prima facie case of obviousness.

Furthermore, the rejection completely ignores the recitation in applicant's claims that the biopolymer be hydrophobic. Biopolymers may be hydrophilic, hydrophobic, or may include both hydrophilic and hydrophobic components. The OH (hydroxyl) group of a polyol is very polar and hence is a hydrophilic group. Nothing in any of the references relied on in the rejections suggests selecting a hydrophobic polyol to make a rigid polyurethane foam having a decreased water absorption characteristic. Although applicants maintain that the decreased water absorption characteristic is a part of the claimed invention as a whole with respect to the claims as originally filed, this amendment after final proposes to amend independent claims 1, 10 and

19 to make it clear that applicant's claimed invention includes a product or a process of making a rigid polyurethane foam having a decreased water absorption characteristic. This characteristic is a part of the claimed invention as a whole that cannot be ignored under 35 USC 103. See In re Brouwer, 37 USPQ2d 1663 (Fed. Cir. 1995) and In re Ochiai, 37 USPQ2d 1127 (Fed. Cir. 1995).

Kurth et al. was focused on a problem associated with the use of vegetable oil as a polyol to produce a urethane product including the inability to regulate the functionality of the polyol resulting in variations in urethane product where the industry demands relatively strict specifications be met. See paragraph [0011]. Kurth et al. solved the problem by using a two-stage transesterification process involving the reaction product of a multifunctional alcohol and a multifunctional component in subsequent reaction with the vegetable oil. The resulting modified polyol has an increased functionality. As such Kurth et al. actually adds OH (hydroxyl) groups to the vegetable oil polyol. Such hydroxyl groups add polarity to the polyol and thus hydrophilicity to the polyol. No prima facie case of obviousness can be established by the combination of Tsai and Kurth et al., as proposed. Withdrawal of the rejection is respectfully requested.

Furthermore, applicant maintains that Kurth et al., at best, teaches away from applicant's claims by suggesting that biopolymers may be utilized to make flexible foams suitable for use as carpet backings. Applicant's independent claims are directed to either methods or products including a rigid polyurethane foam.

Claims 1-25 were rejected under 35 U.S.C. 103(a) as being obvious over Lekovic et al. (6,803,390) and (6,699,916) each taken alone, or in view of Kurth et al. The Examiner has taken the position that because the Lekovic, et al. patents disclose the preparation of polyurethane foams through the formation of isocyanate terminated prepolymers derived from

the reaction of isocyanate with hydroxyl functional acrylates and other polyols, and because Kurth et al. discloses polyols in the form of natural oils as soybean oils, it would have been obvious to a person of ordinary skill in the art to employ the biobased polyols of Kurth et al. as polyols in the work-up of the products of Lekovic et al. The rejection fails to establish a prima facie case of obviousness because the rejection fails to explain which portions of the Lekovic et al. patents are being modified or substituted by which portions of Kurth et al. Neither of the Lekovic et al. patents nor Kurth et al., discloses or suggests that a selected biopolymer should be hydrophobic. Again, biopolymers may be hydrophilic, hydrophobic or may include both hydrophilic and hydrophobic portions. No motivation has been supplied as to why one would select hydrophobic over the possibilities. Further, as indicated above, Kurth et al. actually teaches to modify a vegetable oil such as soybean oil in a two-step esterification process which results in increased functionality and increased OH groups on the vegetable oil. This increases the polar groups in the vegetable oil and the hydrophilicity of the polyol. Furthermore, there is no suggestion that using a hydrophobic polyol as recited in applicant's claimed method would produce a rigid polyurethane foam having a decreased water absorption characteristic. The resulting product is a part of the claimed invention as a whole that cannot be ignored under 35 U.S.C. 103. No prima facie case of obviousness can be established with respect to the Lekovic patents and Kurth, et al. taken individually or in combination.

Claims 1-25 were rejected on the ground of non-statutory obvious-type double patenting as being unpatentable over the claims 1-22 of U.S. Patent No. 6,803,390 and claims 1-19 of U.S. Patent No. 6,699,916 each taken alone or in view of Kurth et al. The claims of the Lekovic et al. patents do not suggest the use of biopolymers nor do they suggest that the biopolymer should be hydrophobic. Furthermore, the claims of Lekovic et al. patents do not suggest that applicant's method using hydrophobic polyols would produce a rigid urethane foam having

decreased water absorption characteristics. Although Kurth et al. discloses the use of biopolymer polyols, there is no suggestion in Kurth et al. that hydrophobic polyols should be selected. Nor is there any suggestion that when such hydrophobic biopolymer polyols are used in applicant's claimed method that the resulting product would be a rigid polyurethane foam having decreased water absorption properties. No prima facie case of non-statutory obvious-type double patenting can be established based on the reference of record. Withdrawal of the rejection is respectfully requested.

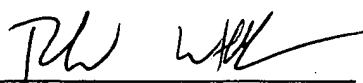
The Examiner is invited to telephone the Applicant's undersigned attorney at (248) 364-4300 if any unresolved matters remain.

Any needed extension of time is hereby requested with the filing of this document.

The Commissioner is authorized to charge fee for the newly added claims 48-50, if entered, and any additional fees or credit any overpayment to Deposit Account No. 04-1512 (Dow Global Technologies Inc.). A duplicate copy of this letter is enclosed herewith.

Respectfully submitted,

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by 
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